

A FURTHER NOTE ON *AGROSTIS ELLIOTTIANA*  
(GRAMINEAE) IN ARIZONA

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ABSTRACT

It has been discovered that *Agrostis elliotiana*, thought to be new to Arizona and New Mexico in 1986, was actually collected by C.G. Pringle near Tucson, Pima County, AZ, more than 100 years ago. The only voucher specimen is apparently at VT. Included also is information about other species collected in the area at about the same time, with notes on habitat changes.

KEY WORDS: *Agrostis elliotiana*, Arizona, Pringle.

Three years ago we reported the occurrence of *Agrostis elliotiana* Schultes in Arizona and New Mexico (Reeder & Reeder 1986); these were considered to be first records. In the spring of 1985 and again in 1986 we had encountered this delicate annual grass in Pima County, Arizona, along Ash Creek which flows near the border with Cochise County on the eastern side of the Rincon Mountains. While we were studying the collections, we received a specimen of the same species from R.D. Worthington (UTEP), who had found it on the westernmost edge of the Peloncillo Mountains in Hidalgo County, New Mexico, near the Arizona border. Like our specimens, his had been found growing along the edge of a stream. These records extended the known distribution for *A. elliotiana* westward from central Texas.

We believed that a thorough search of the literature had been made before we published our account. Neither Hitchcock (1951), Gould (1951), nor Swallen (1960) gave any clue that this grass had ever been found in Arizona. At the time we recorded our findings, we had studied *Agrostis exigua* Thurber, an annual California species, and concluded that the two are conspecific; *A. elliotiana* Schultes is the older binomial.

Recently, while researching an unrelated matter, we were alerted to a startling bit of information in a series of papers by F. Lamson Scribner (1882-1883). Among the 85 species mentioned, some 16 had been collected in California, while the remainder had come from Arizona. Most of the Arizona collections were from the area around Tucson, particularly Fort Lowell. Others were from the Santa Cruz Valley, Santa Rita Mts., Santa Catalina Mts.,

one from Pantano and another from near Yuma. To our surprise, we noted *Agrostis arachnoides* Elliott [= *A. elliotiana*] in the list, as having come from "near Fort Lowell"!! ARIZ had no such collection, and it is clear US had none. It seemed unlikely that this was a misidentification; Scribner, who had studied the grasses in Tennessee and the southeastern United States, would certainly have known this species. There seemed a chance that the Pringle Herbarium (VT) might have the specimen we were seeking. We made inquiry, and through the courtesy of Dr. David S. Barrington, we shortly received the loan of an herbarium sheet with a fine example of this delicate awned annual species of *Agrostis*. The label data are: "FLORA OF THE PACIFIC SLOPE, Arizona, *Agrostis arachnoides* Ell., near Camp Lowell, April, 1881. C.G. Pringle." (Above the label someone had written in pencil: "*A. Elliotiana* [sic!] Schultes." This left no doubt that the species, indeed, had been collected in Arizona over 100 years before our gatherings!

At present the locality "near Fort Lowell" seems a most unlikely habitat for this little grass which is to be found growing along the sandy margins of running streams. Fort Lowell is now surrounded by the city of Tucson, and the washes nearby are dry except for short periods during heavy summer rains. One must look back in time to understand this distribution.

Pringle made his first trip to the Pacific Slope in the autumn of 1880, the year the railroad arrived in Arizona. No doubt he utilized this newly available means of transportation. During this time, he had three objectives: 1) to explore the forests of the area for the U.S. Census Department; 2) to collect woods for the Jesup Collection of the American Museum of Natural History; and 3) to make general collections for Dr. Gray's studies. At that time, Asa Gray was working on *The Synoptical Flora of North America* and felt the need for material from the arid Southwest. Pringle was permitted to make duplicate specimens for his own herbarium and for sets which were to be sold to help defray the expenses of the trip. He worked at these tasks through 1884 (Brainerd 1911).

It was in 1881 that Pringle collected rather extensively around Tucson, probably staying at Fort Lowell. Camp Lowell or Fort Lowell, as it was variously called, was first established in 1862 by California Volunteers at a site which is now in the center of downtown Tucson. It remained active for two years when in September, 1864, it was abandoned, but was reoccupied in May, 1865. In 1866 the site was made a permanent post and given the name Camp Lowell. It developed that the original site was not a good location. The need for an adequate water supply for the post, as well as hay for the horses, resulted in the Camp's being moved in 1873 to a spot on which the ruins of the once lively fort now stand. The new location was at the edge of the then running Rillito stream, where there was an abundant growth of grass nearby. Soon it became a thriving community with a public school, church, two weekly papers and various places of entertainment for the soldiers. It remained an

important Fort until the 1880's when the Apaches were finally subdued. In 1886 it was abandoned, and the area left to become ruins. Within recent years, however, efforts have been made to restore portions of the old Fort; the immediate surroundings now constitute Fort Lowell Park (Barnes 1960).

The list of grasses presented in the above mentioned list by Scribner included 14 species which had come from Camp Lowell. In addition to *Agrostis arachnoides*, there were the following which are commonly found in moist soil: *Agrostis exarata* Trin. "of two forms," one from the banks of the Rillito in May; the other with a more slender panicle from the Santa Rita Mts. in July. (It is of interest that Hitchcock in 1905 p. 38, confirms these two forms of *Agrostis exarata*.) Also, *Panicum sanguinale* L. [= *Digitaria sanguinalis* (L.) Scop.]; *Poa annua* L. var. *stricta* Vasey, from the banks of the Rillito (= *Poa bigelovii* Vasey & Scribner). The Pringle gathering of 1881 is the type collection for this latter taxon, one of Arizona's early spring blooming grasses. Other species collected by Pringle in 1881 from the Santa Cruz Valley and Camp Lowell area appear to be grasses of the foothills and/or mesas in that vicinity: e.g. (with the modern binomials): *Digitaria insularis* (L.) Mez ex Ekman; *Hilaria belangeri* (Steud.) Nash; *Aristida adscensionis* L.; *Aristida hamulosa* Henr.; *Sporobolus contractus*, A.S. Hitchcock and several species of *Bouteloua*: *B. aristidoides* L., *B. chondrosioides* (H.B.K.) Benth. ex S. Wats., *B. barbata* Lag. (It is noteworthy that in 1901 Scribner & Merrill described *Bouteloua micrantha* based on Griffiths 1556 from Fort Lowell. This is now regarded as a synonym of *B. barbata*.) *Pappophorum apertum* Munro ex Scribner, which was said to have come from the "Mesas near Camp Lowell, Arizona" was also described from a Pringle collection of the 1881 set. This is now considered to be a synonym of *Pappophorum vaginatum* Buckley. Another name based on a Pringle collection of 1881 is *Sporobolus cryptandrus* (Torrey) A. Gray var. *strictus* Scribner. The author indicated that it was from "Banks of the Rillita [sic!] near Camp Lowell. June." This is *Sporobolus contractus* A.S. Hitchcock, which is based on the same type.

J.J. Thornber (1909) discussed the vegetation groups of the Desert Laboratory Domain, which included such areas as I. Tumamoc Hill [location of the Laboratory buildings]; II. Mesa-like Mountain Slopes; III. Santa Cruz Floodplain; and IV. Santa Cruz River and Irrigation Ditches. Among the numerous grass species listed for the Santa Cruz flood-plain, there is no mention of any *Agrostis* species. In the category of Santa Cruz River and Irrigation Ditches, he does list *Agrostis verticillata* Vill. [= *Polypogon viridis* (Gouan) Breistr.] and *Paspalum distichum* L., both species to be found in moist places. In the ARIZ Herbarium there are numerous specimens collected by Thornber from Fort Lowell during the early 1900's, but we found no *Agrostis elliotiana*. Both Thornber and David Griffiths were actively collecting plants, especially grasses, in 1901-1903 in southern Arizona. Most of the Thornber collections and many of the Griffiths numbers are in ARIZ. Two collections of *Agrostis*

*scabra* Willd., which came from Fort Lowell are: *Thorner s.n.*, June 1, 1903 and *Thorner 491*, May 25, 1903. This perennial species was associated with the annual, inconspicuous, ephemeral *Agrostis eliottiana* where we found it in 1985 and 1986. This would tend to suggest that in the early 1900's there was some water in the Rillito Stream, which joins the Santa Cruz River not far from the Fort Lowell site.

*Agrostis eliottiana* is not a newcomer to Arizona. It was here in 1881, and presently is to be found in at least one locality in the State. It is not likely that it will again be found in the Fort Lowell area. In our experience, this little grass is confined to riparian habitats - Fort Lowell scarcely qualifies for that designation today.

The fact that Pringle found *Agrostis eliottiana* in 1881 demonstrates again that he was a keen plant observer. Although neither Griffiths nor Thorner collected the species, this does not necessarily mean that it was there only in the year Pringle found it. We emphasize again that it is a delicate, inconspicuous plant, which is frequently (perhaps always) found in association with *Agrostis scabra*. It might easily be mistaken for a young plant of that species.

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